



Memorandum

To: Rick Sun, Los Angeles County Department of Public Works

*From: Wendy Katagi, CDM Smith
Matt Petty, CDM Smith*

Date: January 11, 2016

Subject: Draft Daily Biological Monitoring for the Oxford Retention Basin Multiuse Enhancement Project

Introduction

This memorandum summarizes the findings of biological monitoring on January 11, 2016, for the Oxford Retention Basin Multiuse Enhancement project. Information regarding the regulatory drivers and methodology of daily biological monitoring can be found in the Biological Monitoring – Introduction and Methods for Phase 2 Construction Memo, dated June 23, 2015.

Biological monitoring was conducted by Matt Petty, CDM Smith biologist, beginning at 6:10 am and ending at 4:15 p.m. Weather conditions were partly cloudy to mostly clear. Temperatures ranged from 48°F in the morning to 63°F in the afternoon. No measureable rain was recorded.

During the daily monitoring, the biologist observed activities associated with scaffolding for the new path along the east fence, cleaning near the boat ramp, asphalt removal near the pump house, spreading manure on the north bank, installing and testing the irrigation system, installing PVC sheeting on the south bank, grading the south bank, and disposing of construction debris. All crews were overseen by the Contractor Superintendent and the Inspector of Record.

The following sections provide the biologist's field-log notes, with observations of the day's activities and wildlife presence and behavior.

Biologist's Field Log

6:10 am. Biological monitor arrives on site to conduct initial assessment. The construction trailer gate is open and several crew members wait inside cars in the staging area. The Inspector of Record is working in the construction trailer.

6:15 am. The biological monitor discusses the planting schedule and the planned activities for the week with the Inspector of Record. Crews have completed plantings on the gabion peninsula. The focus will be on installing irrigation and preparing bank soils for planting. Planting will be sporadic, but on-going. The Basin water levels are up to the edge of the mudflats and reach the tips of the northeast and northwest peninsulas.

6:30 am. The initial biological survey begins. Very little wildlife activity is observed until dawn approaches. Raccoon and domestic cat tracks are observed in the mud along the north bank. One western gull flies over the West Basin, and one ring-billed gull flies over the north bank. Small gullies have formed on the denuded slopes due to recent rains, but the silt fence appears to be holding up well. One black phoebe is observed in the northeast corner, and two yellow-rumped warblers and two house finches are observed in palms along Washington Boulevard. One dark-eyed junco and one yellow-rumped warbler are observed along the bike path, and two Anna's hummingbirds call from the trees near the pump house. Just before dawn (i.e. 6:50 am), gull activity increases dramatically, and flyovers from western, ring-billed, and California gulls occur frequently. One Allen's hummingbird is observed flying over the south fence, while one snowy egret forages along the south shoreline. One American crow probes the gabion peninsula, and one American coot forages in the West Basin. Two double-crested cormorants fly over the staging area and land in the canals to the northwest of the site.

7:00 am. The biological monitor gives the bio-awareness training to the construction crew. Emphasis was placed on protection of waterfowl, wading birds, and monarch butterflies and keeping the site clean. Workers were reminded to clean up trash in the work area prior to the end of the work day. All 27 crew members present sign the sign-in sheet. During the training, three American wigeon fly over the staging area and land in the marina.

7:20 am. Work begins and crews load construction debris and asphalt from a pile in the northeast corner into a waiting dump truck to be hauled offsite. A second crew prepares the northwest corner for future planting. One black phoebe perches on the gabion peninsula near the tide gates. The snowy egret leaves the site to the northwest.

7:40 am. A crew begins staging potted plants in the northwest corner. In the southwest corner, crews begin an excavation by hand. One Say's phoebe flies along the north bank, and five American crows perch in palms along Washington Boulevard. Two mourning doves fly over the West Basin, and one mallard flies over the staging area before landing to the northwest of the site. Three Anna's hummingbirds chase one another above the north fence, and four European starlings fly south-to-north over the East Basin.

7:55 am. Mechanized grading begins at the top of bank of the south slope. One belted kingfisher flies over the Central Basin. Five rock pigeons circle the high rises south of Admiralty Way, and a second group of 14 rock pigeons perch on the roof of the Killer Shrimp restaurant. A small, but continuous flow is observed at the stormwater inlet. A large amount of floating algae is observed in the East and Central Basins.

8:10 am. Crews begin removing the privacy fence along Admiralty Way to allow grading work along the top of the south bank. The American coot observed earlier circles the site before returning to the Central Basin. Manure is hauled via large front loader from the pile on the east bank to the northwest peninsula.

8:30 am. Crews work on installing wooden scaffolding along the east fence for future cement curbs

along the new path. Installation includes minor trenching. Four house finches are observed in the northeast corner pines. One yellow-rumped warbler and two house finches are observed in palms along Washington Boulevard, and one house sparrow perches on the north fence. Two American crows probe the east bank.

8:50 am. Crews spread manure by hand around the northwest peninsula and on the banks of the northwest corner. One double-crested cormorant flies over the East Basin, and a group of eight American crows probe the south bank. One yellow-rumped warbler and two European starlings perch in palm trees overlooking the northwest corner. Three mourning doves perch on powerlines above the north bank. Gulls, primarily westerns, continue to fly over the site frequently.

9:20 am. Crews work to install irrigation lines along the south bank. Manure is delivered by front loader to the northeast peninsula and is spread along the north bank. One black phoebe is observed along the western fence, and one house finch flies over the West Basin. One American crow probes the recently spread manure in the northwest corner. One European starling and one mourning dove perch on powerlines above the northwest mudflats.

9:45 am. Three dump trucks deliver soils to the staging area. One snowy egret lands in the West Basin and begins foraging. Wildlife activity has decreased and consists largely of American Crow, rock pigeon, and western gull flyovers. One American coot continues to forage in the East Basin.

10:00 am. A dump truck arrives at the northeast gate to haul off construction debris from the nearby stockpile. Two black phoebes fly from perch-to-perch in the East Basin, and four European starlings fly along the north fence.

10:20 am. Manure spreading continues at the northeast peninsula and around the stormwater inlet. Two bushtits and one yellow-rumped warbler are observed in small trees along the bike path in the northeast corner of the site.

10:40 am. A crew cuts asphalt near the pump house, while two Anna's hummingbirds and one American crow perch in trees overhead. Two yellow-rumped warblers forage in the potted plants underneath the northeast pines. A two-person crew cleans out the southeast channel outlet. One Say's phoebe and one black phoebe perch nearby. One Allen's hummingbird hovers over the southeast channel. Two orange-crowned warblers and one Townsend's warbler are observed in the southeast corner of the site. The phoebes continuously chase the warblers and each other.

11:05 am. Minor excavation associated with irrigation piping and grading continue along the top of the south bank. One black phoebe is observed perching on stakes along the south bank. Two yellow-rumped warblers forage in the pines near the tide gates, while an American coot forages on grass along the shoreline below.

11:20 pm. The snowy egret leaves the site to the southeast. One bufflehead lands in the Central Basin and begins diving for food.

11:30 am. All crews and the biological monitor break for lunch.

12:15 pm. Work resumes with the spreading and tilling of soils on the north bank and the installation of a PVC liner on the south bank. In the northeast corner, a dump truck is loaded with construction debris to be hauled off-site. Five American crows probe the west bank, and one European starling perches on a power pole in the northwest corner. One Anna's hummingbird hovers over the northwest peninsula. The occasional western gull flyover is also observed.

12:40 pm. Crews begin installing rebar in the southwest corner for the parapet wall. One snowy egret lands in the East Basin, and one yellow-rumped warbler flies about the northeast peninsula.

1:00 pm. Dump trucks continue to arrive and offload soils in the staging area. Testing of the irrigation system on the west bank begins. Three mourning doves perch on temporary power lines above the west bank, and two house finches are observed in a shrub on the west bank.

1:20 pm. One bufflehead is observed diving in the West Basin, and one black phoebe perches on the tide gates nearby. One American coot continues to forage along the south shoreline. One yellow-rumped warbler is observed in the pines next to the tide gates.

1:40 pm. Topsoil is delivered to the south bank; Admiralty Way is down to one lane. One Anna's hummingbird flies south over Admiralty Way. One black phoebe perches on silt fence along the south bank, and one yellow-rumped warbler flies from mound-to-mound along the south bank. The occasional western gull and ring-black gull flies overhead.

2:00 pm. Manure is delivered to the northwest peninsula from the east bank stockpile using a large front loader. Crews spread the manure by hand or with the help of a Bobcat. One American crow and one black phoebe are observed on the stormwater inlet. Three yellow-rumped warblers fly about the south fence.

2:15 pm. Crews continue to work at the boat ramp/southeast channel, cleaning the structures. Crews also continue installing scaffolding along the east fence. One Cooper's hawk flies south-to-north over the bike path. No monarchs are observed in the eucalyptus trees near the bike path; however, one Anna's hummingbird is observed.

2:40 pm. Crews on the south bank re-open the closed Admiralty Way lane, and puts the privacy fence back in place. One yellow-rumped warbler perches on a temporary power line on the west bank.

3:00 pm. A small crew works on the platform from which the tide gate trash grate will be cleaned. Gull activity increases, with flyovers from western, ring-billed and California gulls. The wind is beginning to pick up. *Note: the tide gate trash grate has small-diameter holes which may make it difficult for fish to enter the Basin from the marina.*

3:20 pm. All work stops for the day and crews begin cleaning up and prepare to leave the site. One American coot continues to forage along the south shoreline; it has foraged in the Basin all day. Two black phoebes are observed in the East Basin, and six rock pigeons fly over the staging area.

3:50 pm. The construction contractor management team meets with the Inspector of Record in the construction trailer. Three mallards fly over the West Basin and land in the marina.

4:15 pm. All construction crew members and the biological monitor leave the site.

Additional Observations

No Black Skimmers, Osprey, or California Least Terns were observed today.

No savannah sparrows, and therefore no potential Belding's savannah sparrows, were observed today.

No planting occurred today.

No monarch butterflies were observed flying around the project site. Cold temperatures and light winds all day likely contributed to the absence of monarch observations. No butterflies or other wildlife were harmed during construction. Construction crews were reminded to be on the lookout for any monarchs that fly into active work areas.

Conclusions

Based on observations made during monitoring, the following conclusions were made:

1. Biological awareness training emphasizes caution to avoid harm to birds and wildlife in and around the Basin during construction activities. In general, wildlife tends to slowly move away from an area when crews approach to conduct work activities. They return to the area once the crews move on.
2. In general, wildlife is most active in the morning with a dramatic decrease in observed wildlife activity after 10:00 am, with the exception of American crows and gulls. Wildlife activity often increases slightly in the late afternoon.
3. No monarch butterflies were observed today. Overall, no butterflies of any species were observed. The poor weather conditions, particularly the cooler temperatures, likely contributed to the absence of butterfly observations.
4. Some floating algae was observed throughout the Basin, particularly in stagnant pools.
5. Winter species have arrived including the yellow-rumped warbler, Say's phoebe, and California gull. As winter approaches, it is expected that migrants and winter species will be observed at the site more frequently moving forward.
6. Waterfowl and wading birds have routinely been observed flying over the Basin and landing to the northwest in Venice's canals. These canals, the marina, and the Ballona Wetlands Ecological

Reserve are areas where birds have likely temporarily relocated while construction occurs at the Basin.

7. Wildlife activity largely consists of flyovers and occurs around the periphery of the project site; very little activity is observed within the basin itself. Wildlife activity is concentrated along Admiralty Way and Washington Boulevard, and near the bike path and Yvonne Burke Park.

Table 1 provides a list of bird species observed during biological monitoring on January 11, 2016.

Table 1. Bird Species Observed during Biological Monitoring on January 11, 2016		
Common Name	Scientific Name	Comments
American Crow	<i>Corvus brachyrhynchos</i>	Several individuals; Very common flying overhead, perching on power line poles, and exploring the basin banks
Cooper's Hawk	<i>Accipiter cooperii</i>	1 individual observed flying along the bike path
Western Gull	<i>Larus occidentalis</i>	Several individuals; Very common flying overhead
California Gull	<i>Larus californicus</i>	Several individuals observed flying overhead; not as common as western or ring-billed gulls
Ring-billed Gull	<i>Larus delawarensis</i>	Several individuals; Very common flying overhead
Snowy Egret	<i>Egretta thula</i>	1-3 individuals foraging throughout the Basin
Mallard	<i>Anas platyrhynchos</i>	4 individuals observed flying overhead
American Wigeon	<i>Anas americana</i>	3 individuals observed flying overhead
Bufflehead	<i>Bucephala albeola</i>	1 individual foraging throughout the Basin
American Coot	<i>Fulica americana</i>	1 individual foraging throughout the Basin
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	2-3 individuals observed flying overhead
Belted Kingfisher	<i>Megaceryle alcyon</i>	1 individual flying over the Central Basin
Rock Pigeon	<i>Columba livia</i>	Very common; observed flying overhead and on structures to the south and west of the Basin
Say's Phoebe	<i>Sayornis saya</i>	1-2 individuals observed flying from perch-to-perch throughout the Basin
Black Phoebe	<i>Sayornis nigricans</i>	Several observed flying from perch-to-perch throughout the Basin
Orange-crowned Warbler	<i>Oreothlypis celata</i>	2 individuals observed in the southeast corner of the Basin
Yellow-rumped Warbler	<i>Dendroica coronate</i>	Several individuals observed flying from perch to perch throughout the Basin
Townsend's Warbler	<i>Setophaga townsendii</i>	1 individual observed in the southeast corner
House Finch	<i>Carpodacus mexicanus</i>	Several individuals; common in palms along Washington Boulevard
Mourning Dove	<i>Zenaida macroura</i>	7-9 individuals observed flying overhead or perched on power lines
Bushtit	<i>Psaltiriparus minimus</i>	2 individuals observed in the northeast corner
House Sparrow	<i>Passer domesticus</i>	1 individual observed on the north fence

European Starling	<i>Sturnus vulgaris</i>	10-12 individuals observed flying overhead
Dark-eyed Junco	<i>Junco hyemalis</i>	1 individual observed along the bike path
Anna's Hummingbird	<i>Calypte anna</i>	8-10 individuals observed in and around trees and perched on fences throughout the Basin
Allen's Hummingbird	<i>Selasphorus sasin</i>	1-2 individuals observed near the southeast channel

The following photographs show the mudflats and the water levels within the Basin:



Figure 1- Northwest mudflat from the west bank



Figure 2- Central mudflat from the northwest peninsula



Figure 3 - Northeast corner and stormwater inlet from the northeast peninsula



Figure 4 - East Basin from the south bank looking north



Figure 5 - Central Basin from the south bank looking north



Figure 6 - Gabion berm from the west bank



Memorandum

To: Rick Sun, Los Angeles County Department of Public Works

*From: Wendy Katagi, CDM Smith
Matt Petty, CDM Smith*

Date: January 12, 2016

Subject: Draft Daily Biological Monitoring for the Oxford Retention Basin Multiuse Enhancement Project

Introduction

This memorandum summarizes the findings of biological monitoring on January 12, 2016, for the Oxford Retention Basin Multiuse Enhancement project. Information regarding the regulatory drivers and methodology of daily biological monitoring can be found in the Biological Monitoring – Introduction and Methods for Phase 2 Construction Memo, dated June 23, 2015.

Biological monitoring was conducted by Matt Petty, CDM Smith biologist, beginning at 6:15 am and ending at 3:45 p.m. Weather conditions were mostly clear and sunny. Temperatures ranged from 46°F in the morning to 62°F in the afternoon. No measureable rain was recorded.

During the daily monitoring, the biologist observed activities associated with cement pours and shaping along the east fence and in the southwest corner, cement work at the top of the boat ramp, sandblasting the southeast channel outlet structure, trenching for structural fill bearing wall and new stormwater pipe, silt fence repair, installing PVC sheeting on the south bank, tide gate trash rack modifications, and disposing of construction debris. All crews were overseen by the Contractor Superintendent and the Inspector of Record.

The following sections provide the biologist's field-log notes, with observations of the day's activities and wildlife presence and behavior.

Biologist's Field Log

6:15 am. Biological monitor arrives on site to conduct initial assessment. The construction trailer gate is open and several crew members wait inside cars in the staging area. The Inspector of Record is working in the construction trailer.

6:30 am. The initial biological survey begins. Very little wildlife activity is observed until dawn approaches. Two mallards fly in from the west and land in the Central Basin. One northern mockingbird perches on a light pole along Washington Boulevard. Frequent western gull and occasional ring-billed and California gull flyovers are observed. Two house finches are observed in

the northeast corner, and two dark-eyed juncos forage in the northeast corner pines. Two American crows chase a Cooper's hawk out of a large eucalyptus along the bike path. One yellow-rumped warbler forages along the east bank. Two bushtits and two yellow-rumped warblers are observed in trees near the pump house, and fresh raccoon tracks are present in the mud nearby. One Anna's hummingbird is observed hovering over the southeast corner. Two black phoebes perch on the south bank, and two American coots and one snowy egret forage in the West Basin near the tide gates.

7:00 am. The biological monitor gives the bio-awareness training to the construction crew. Emphasis was placed on protection of waterfowl, wading birds, and monarch butterflies and keeping the site clean. Workers were reminded to clean up trash in the work area prior to the end of the work day. All 16 crew members present sign the sign-in sheet. During the training, the snowy egret leaves the site and flies over the staging area to the northwest.

7:15 am. Work begins and crews load large PVC pipe into a truck in the staging area. A large front loader and mini excavator load a dump truck with construction debris in the northeast corner. Two European starlings fly east over Washington Boulevard, and three American crows probe the west bank.

7:30 am. The concrete crew works on scaffolding and rebar for the parapet wall in the southwest corner. One yellow-rumped warbler is observed in the northwest corner, and three rock pigeons fly over the Central Basin. Two mallards move to the southeast channel. One Anna's hummingbird hovers over the stormwater inlet. A large release of water from the pump house into the southeast channel lasts 30 seconds.

7:50 am. A continuous trickle enters the Basin from the stormwater inlet. A large volume of water flows into the Basin, as the tide gates are opened. Two house finches fly from nearby palm trees and perch on a power line above the northeast peninsula. One Anna's hummingbird is observed perched in one of the northeast pines. One double-crested cormorant circles low around the Basin before leaving to the southwest.

8:10 am. Crews work on the curb scaffolding and new path along the east fence. One orange-crowned warbler flies along the east bank and lands in the northeast pines, where a group of five bushtits forage. Two killdeer are observed stalking the shallows of the East Basin. Three mourning doves fly north over the east bank. One Anna's hummingbird chases an Allen's hummingbird along the bike path.

8:25 am. Water now completely fills the Basin to the toe of slope. Two dark-eyed juncos and two yellow-rumped warblers are observed in trees along the bike path. Two Allen's hummingbirds hover over the east bank, as a yellow-rumped warbler forages below. One orange-crowned warbler forages along the shoreline of the East Basin.

8:50 am. A crew fixes silt fence along the southeast channel to move it out of the path of rising waters. A crew grades the area along the east fence for a future path. One Say's phoebe and one black phoebe are observed perched along the southeast channel. Eight to ten hummingbirds are

observed in eucalyptus trees along the bike path; with 4-6 being Anna's hummingbirds and 2-4 being Allen's hummingbirds. One ruby-crowned kinglet and two yellow-rumped warblers are observed in trees near the pump house. No monarch butterflies are observed roosting or sunning in any of the bike path trees.

9:10 am. Six American crows and two house finches perch in palms along Washington Boulevard. One black phoebe is observed near the stormwater inlet and another is observed near the northeast peninsula. Two house sparrows perch on the fence in the northeast corner. The occasional gull flyover is observed – primarily ring-billed gulls.

9:30 am. A crew excavates a trench for a stormwater pipe in the northeast corner and hauls the soils to the contaminated soil stockpile on the east bank. A LACDPW staff person releases water from the pump house, which flushes two American coots farther down the southeast channel. One orange-crowned warbler perches on the east fence, and one yellow-rumped warbler flies from perch-to-perch along the east bank.

9:50 am. A crew removes the privacy fence from a portion of the south bank along Admiralty Way. One lane of Admiralty Way is closed so that the dump truck can receive soil from minor excavation associated with installing a structural fill bearing wall. A Rain for Rent crew enters the site through the northeast gate. Two black phoebes perch on stakes in the Central Basin, and three house finches fly over the Central Basin.

10:20 am. A crew works on the trash grate at the tide gates; two American coots forage nearby. Two European starlings are observed in the palms along Washington Boulevard. A group of five American crows hop around the northwest corner. One house finch and one yellow-rumped warbler are observed in bushes in the staging area.

10:40 am. A dump truck delivers fine gravel to the south bank. One black phoebe perches on the gabion peninsula, and five rock pigeons fly over the West Basin. Two mallards leave the Basin to the northwest. One yellow-rumped warbler is observed in the potted pickleweed along the south bank. *Note: the large rootwads on the bank could be cleaned and submerged in the Basin or partially buried in the mudflats to provide aquatic habitat.*

11:00 am. A crew sandblasts the southeast channel outlet structure, which results in some minor dust issues. One yellow-rumped warbler and one black phoebe perch on the silt fence along the southeast channel. One Say's phoebe perches on a railing at the pump house. One yellow-rumped warbler perches on the south fence. Two Anna's hummingbirds and one Allen's hummingbird are observed along the bike path.

11:15 pm. The concrete crew takes lunch in preparation for the noon concrete pour. A mini excavator is used to remove and stockpile asphalt in the northeast corner. The asphalt is loaded onto a truck using a large front loader. Two yellow-rumped and two orange-crowned warblers fly about the soil stockpiles on the east bank. One Allen's hummingbird hovers over the northeast corner pines. One black phoebe and one yellow-rumped warbler perch on silt fence in the northeast corner of the site.

11:35 am. One osprey flies in from the east and circles the Central Basin and West Basin several times before leaving the site to the northwest. The osprey hovered twice, looking for fish in the Basin.

11:50 am. All remaining crews and the biological monitor break for lunch.

12:30 pm. Work resumes with excavation along the south bank associated with the structural fill bearing wall. The concrete pour of the parapet wall is taking place in the southwest corner. Two house sparrows are observed foraging in bushes in the staging area. One black phoebe perches on the tide gatehouse. One yellow-rumped warbler forages in the potted plants on the west bank.

12:50 pm. The Construction Superintendent indicates the water level is at -1.0 MSL in the Basin. This is 2.5-3.5 feet below normal, operational water levels. One double-crested cormorant flies over the West Basin and lands in the marina. One yellow-rumped warbler is observed in the pine tree nearest the tide gates. One monarch and one sulphur butterfly are observed flying along the south bank. These are the first and only two butterflies observed over the first two days this week.

1:15 pm. A cement mixer arrives at the northeast gate to begin pouring along the east fence. One snowy egret is observed near the stormwater inlet. Frequent western gull and occasional ring-billed gull flyovers are observed.

1:35 pm. Minor concrete work occurs at the top of the boat ramp, and sand blasting of the southeast channel outlet continues. The snowy egret leaves the site to the southeast. One yellow-rumped warbler and two black phoebes are observed along the southeast channel. A third black phoebe and one orange-crowned warbler are observed in the southeast corner of the site.

1:55 pm. A large excavator loads a truck stationed along Admiralty Way with rock and debris from the southeast corner. One snowy egret lands in the West Basin. One Anna's hummingbird is observed along the east fence, and one yellow-rumped warbler forages along the east bank.

2:10 pm. Concrete mixers finish work for the day and clean up in the staging area. Crews smooth and shape the concrete along the east fence and in the southwest corner. One killdeer, one yellow-rumped warbler, and one black phoebe are observed foraging along the East Basin shoreline. The snowy egret in the West Basin flies to the southeast channel.

2:35 pm. Crews replace the privacy fence in the northeast corner of the site and use a mini excavator to dig a trench for a future stormwater pipe. One snowy egret and two American coots forage in the stormwater inlet. Three house finches are observed in palms along Washington Boulevard. Strong wind gusts become common.

3:00 pm. Crews replace privacy fence along the south bank and return two-lane traffic to Admiralty Way. One black phoebe perches on silt fence along the south shoreline, and three rock pigeons fly over the West Basin.

3:20 pm. A woman feeds a group of gulls and pigeons in Parking Lot No. 8 consisting of 11 rock pigeons, 8 western gulls and 2 ring-billed gulls. Work at the tide gates continues as modifications are made with a circular saw. Two American crows fly east above the north fence.

3:30 pm. All work stops for the day and crews begin cleaning up and prepare to leave the site. Two house sparrows forage in brush along the west bank, and one black phoebe perches in the pine next to the tide gates.

3:45 pm. All construction crew members, except for the construction superintendent, and the biological monitor leave the site. The construction superintendent is going to stay until after low tide (i.e. 5:00 pm) to open the tide gates and flush the water in the Basin out to the marina.

Additional Observations

A single osprey was observed circling the Basin and hovering above the water looking for fish. After approximately two minutes, the osprey flew offsite to the northwest.

No Black Skimmers or California Least Terns were observed today.

No savannah sparrows, and therefore no potential Belding's savannah sparrows, were observed today.

No planting occurred today.

One monarch butterfly was observed flying along the south bank. Cold temperatures in the morning and windy conditions in the afternoon likely contributed to few monarch observations. No butterflies or other wildlife were harmed during construction. Construction crews were reminded to be on the lookout for any monarchs that fly into active work areas.

Conclusions

Based on observations made during monitoring, the following conclusions were made:

1. Biological awareness training emphasizes caution to avoid harm to birds and wildlife in and around the Basin during construction activities. In general, wildlife tends to slowly move away from an area when crews approach to conduct work activities. They return to the area once the crews move on.
2. In general, wildlife is most active in the morning with a dramatic decrease in observed wildlife activity after 10:00 am, with the exception of American crows and gulls. Wildlife activity often increases slightly in the late afternoon.
3. One monarch butterfly was observed today. The cooler temperatures in the morning and winds in the afternoon likely contributed to few butterfly observations.

4. Some floating algae was observed throughout the Basin, particularly in stagnant pools.
5. Winter species have arrived including the yellow-rumped warbler, Say's phoebe, and California gull. As winter continues, it is expected that winter species will be observed at the site more frequently moving forward.
6. Waterfowl and wading birds have routinely been observed flying over the Basin and landing to the northwest in Venice's canals. These canals, the marina, and the Ballona Wetlands Ecological Reserve are areas where birds have likely temporarily relocated during construction.
7. Wildlife activity largely consists of flyovers and occurs around the periphery of the project site; very little activity is observed within the basin itself. Wildlife activity is concentrated along Admiralty Way and Washington Boulevard, and near the bike path and Yvonne Burke Park.

Table 1 provides a list of bird species observed during biological monitoring on January 12, 2016.

Common Name	Scientific Name	Comments
American Crow	<i>Corvus brachyrhynchos</i>	Several individuals; Very common flying overhead, perching on power line poles, and exploring the basin banks
Cooper's Hawk	<i>Accipiter cooperii</i>	1 individual observed flying along the bike path
Osprey	<i>Pandion haliaetus</i>	1 individual observed circling the Basin overhead
Western Gull	<i>Larus occidentalis</i>	Several individuals; Very common flying overhead
California Gull	<i>Larus californicus</i>	Several individuals observed flying overhead; not as common as western or ring-billed gulls
Ring-billed Gull	<i>Larus delawarensis</i>	Several individuals; Common flying overhead
Snowy Egret	<i>Egretta thula</i>	1-3 individuals foraging throughout the Basin
Mallard	<i>Anas platyrhynchos</i>	2 individuals foraging throughout the Basin
American Coot	<i>Fulica americana</i>	2 individuals foraging throughout the Basin
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	1-2 individuals observed flying overhead
Killdeer	<i>Charadrius vociferus</i>	2-3 individuals observed along the east shoreline
Northern Mockingbird	<i>Mimus polyglottos</i>	1 individual observed along the north fence
Rock Pigeon	<i>Columba livia</i>	Very common; observed flying overhead and on structures to the south and west of the Basin
Say's Phoebe	<i>Sayornis saya</i>	1-2 individuals observed flying from perch-to-perch along the southeast channel
Black Phoebe	<i>Sayornis nigricans</i>	Several observed flying from perch-to-perch throughout the Basin
Orange-crowned Warbler	<i>Oreothlypis celata</i>	4-6 individuals observed along the east bank
Yellow-rumped Warbler	<i>Setophaga coronata</i>	Several individuals observed flying from perch to perch throughout the Basin
Ruby-crowned Kinglet	<i>Regulus calendula</i>	1 individual observed in trees at the pump house

House Finch	<i>Carpodacus mexicanus</i>	Several individuals; common in palms along Washington Boulevard
Mourning Dove	<i>Zenaida macroura</i>	3 individuals observed flying overhead
Bushtit	<i>Psaltiriparus minimus</i>	5-7 individuals observed along the east fence
House Sparrow	<i>Passer domesticus</i>	4-6 individuals observed throughout the Basin
European Starling	<i>Sturnus vulgaris</i>	2-4 individuals observed flying overhead
Dark-eyed Junco	<i>Junco hyemalis</i>	2-4 individuals observed along the bike path
Anna's Hummingbird	<i>Calypte anna</i>	8-10 individuals observed in and around trees and perched on fences throughout the Basin
Allen's Hummingbird	<i>Selasphorus sasin</i>	6-8 individuals observed along the bike path

The following photographs show the mudflats and the water levels within the Basin:



Figure 1- Northwest mudflat from the west bank



Figure 2- Central mudflat from the northwest peninsula



Figure 3 - Northeast corner and stormwater inlet from the northeast peninsula



Figure 4 - East Basin from the south bank looking north



Figure 5 - Central Basin from the south bank looking north



Figure 6 - Gabion berm and tide gates from the west bank



Memorandum

To: Rick Sun, Los Angeles County Department of Public Works

*From: Wendy Katagi, CDM Smith
Matt Petty, CDM Smith*

Date: January 13, 2016

Subject: Draft Daily Biological Monitoring for the Oxford Retention Basin Multiuse Enhancement Project

Introduction

This memorandum summarizes the findings of biological monitoring on January 13, 2016, for the Oxford Retention Basin Multiuse Enhancement project. Information regarding the regulatory drivers and methodology of daily biological monitoring can be found in the Biological Monitoring – Introduction and Methods for Phase 2 Construction Memo, dated June 23, 2015.

Biological monitoring was conducted by Matt Petty, CDM Smith biologist, beginning at 6:10 am and ending at 4:00 p.m. Weather conditions were mostly cloudy to mostly clear. Temperatures ranged from 45°F in the morning to 62°F in the afternoon. No measureable rain was recorded.

During the daily monitoring, the biologist observed activities associated with trenching for structural fill bearing wall on the south bank, repair and improvement of northeast entrance, scaffolding for parapet wall, excavation and grading for the new bike path, preparing soils on the north bank for planting, and disposing of construction debris. All crews were overseen by the Contractor Superintendent and the Inspector of Record.

The following sections provide the biologist's field-log notes, with observations of the day's activities and wildlife presence and behavior.

Biologist's Field Log

6:10 am. Biological monitor arrives on site to conduct initial assessment. The construction trailer gate is open and several crew members wait inside cars in the staging area. The Inspector of Record is working in the construction trailer.

6:25 am. The initial biological survey begins. Very little wildlife activity is observed until dawn approaches. Water levels in the Basin are down from the end of day yesterday, particularly in the East Basin and along the south shoreline where the bed is exposed. One black phoebe perches on silt fence along the northeast peninsula. A trickle flows from the stormwater inlet into the Basin. Two house finches are observed in palms along Washington Boulevard. One yellow-rumped

warbler is observed in the northeast pine trees, and one song sparrow sings from a perch in the northeast corner. Three bushtits, one Allen's hummingbird, and two yellow-rumped warblers are observed near the bike path. Two Anna's hummingbirds and two dark-eyed juncos are observed in trees near the pump house. One peregrine falcon flies over the East Basin to the southeast. Two American coots forage in the southeast channel. One Anna's hummingbird and one orange-crowned warbler are observed in the south bank pines. One bufflehead dives for food in the West Basin, as one American crow flies overhead. Gull flyovers are observed less frequently than on a typical morning, with only a few western gulls observed.

7:00 am. The biological monitor gives the bio-awareness training to the construction crew. Emphasis was placed on protection of waterfowl, wading birds, and monarch butterflies and keeping the site clean. Workers were reminded to clean up trash in the work area prior to the end of the work day. Workers are also reminded to notify the biological monitor if any injured or deceased wildlife is encountered. All 13 crew members present sign the sign-in sheet. During the training, three ring-billed gulls and two American crows fly over the staging area.

7:15 am. Work begins as the concrete crew heads to the southwest corner to construct scaffolding for the parapet wall. Another crew begins taking down privacy fence along the south bank, so that work can be conducted on the structural fill bearing wall. One double-crested cormorant circles low over the Basin before leaving to the southwest. One western gull briefly lands in the Central Basin.

7:30 am. A crew moves the small front loader to the northeast corner to prepare soils near the stormwater inlet for planting. Three rock pigeons are observed flying over the West Basin. Gull and crow activity increases; four American crows perch on the temporary power lines above the west bank. Western and ring-billed gull flyovers occur frequently, and California gull flyovers occur occasionally.

7:50 am. A crew grades and smooths the south bank. Two house sparrows are observed in the pines near the tide gates, as two American coots forage below. One black phoebe perches on a stake in the East Basin, and one Anna's hummingbird is observed flying east along the south fence.

8:05 am. The tide gates are opened and water comes rushing into the Basin. Crews dump dead potted pickleweed onto the south bank to be buried. Two yellow-rumped warblers and one American crow are observed in the southeast channel. One black phoebe is observed flying around the northeast peninsula. One Allen's hummingbird is observed in the trees near the tide gates.

8:30 am. A crew member drags a hose out to the gabion peninsula for future watering of recently installed plants. The water level has reached the -1.0 MSL elevation and tide gates are closed. One yellow-rumped warbler flies along the northern fence. A second bufflehead begins to forage in the East Basin.

8:50 am. A two-person crew cleans the site near the southeast channel outlet. Two American crows and two European starlings are observed in palms along Washington Boulevard. One Allen's hummingbird flies north-to-south over the Central Basin. One surf scoter rests along the shore of

the northeast peninsula. Rock pigeon flyovers are frequently observed.

9:10 am. Trenching, fill placement and compaction activities for the load bearing structural fill wall move slowly eastward along the south bank. One black phoebe is observed at the stormwater inlet. A second black phoebe and a yellow-rumped warbler perch on silt fence along the south shoreline. The surf scoter leaves the site to the southwest when crews hand raking soils along the northeast peninsula get within 20 feet.

9:30 am. The large front loader loads structural fill into a dump truck in the northeast corner; the fill is delivered to the south bank. Admiralty Way is restricted to one lane. Two black phoebes chase one another along the south shoreline. One black-chinned hummingbird is observed in the tide gate pines.

9:50 am. The crew takes down additional privacy fence along Admiralty Way. Two Canada geese circle low over the Basin twice before leaving to the northwest and landing in a nearby canal. Two American crows perch atop the large water tank in the staging area. One Allen's hummingbird flies about the sea lavender under one of the south bank pine trees.

10:10 am. A Power Plus crew arrives at the northeast gate. The large front loader loads structural fill into a dump truck, which takes the fill to the south bank. Two black phoebes and one yellow-rumped warbler forage near the south bank pine trees, roughly 20 feet from the active work area.

10:35 am. Crews stop work along the south bank per the direction of the LACDPW Project Manager. Crews re-install the privacy fence along Admiralty Way. The biological monitor discusses several items with the PM: trash racks and fish passage, mudflat restoration, and use of large rootwads as aquatic habitat. The Power Plus crew begins taking down the temporary power poles and power lines along the east bank. One Say's phoebe flies from perch-to-perch along the central mudflat.

10:50 am. The biological monitor attends the LACDPW meeting in the staging area. The PM has the biological monitor explain the benefits of keeping some rocks and rootwads on the mudflats to the Landscape Architect, Deputy PM, Construction Superintendent, Inspector of Record, and others. The monitor also explains the importance of raising the trash grates off the bottom for fish passage.

11:10 am. Minor cleaning and chiseling work takes place at the stormwater inlet. A second crew delineates planting areas on the northeast peninsula using chalk lines. A flock of 27 cedar waxwings fly over the East Basin and land in a palm along Washington Boulevard. One yellow-rumped warbler and one black phoebe perch on the stormwater inlet, and are not disturbed by nearby activities.

11:30 am. Crews finish re-installing the privacy fence along Admiralty Way and sweep Parking Lot No. 8. One double-crested cormorant lands in the West Basin, as four American crows fly overhead. Two European starlings and three house finches are observed in palms along Washington Boulevard.

11:45 am. All crews and the biological monitor break for lunch.

12:30 pm. Work resumes with the cement crew continuing to erect scaffolding for the parapet wall in the southwest corner. A second crew prepares soils along the north bank for planting. One western gull paddles around the Central Basin. One double-crested cormorant lands in the East Basin and begins diving for fish. One black phoebe perches on a stake in the northwest mudflat.

12:50 pm. The Landscape Architect oversees the planting layout and the chalk delineation along the northeast peninsula and the north bank. A front loader is used to load construction debris into a dumpster in the northeast corner. Two American coots continue to forage in the southeast channel. Two house finches and one American crow fly along the west fence.

1:10 pm. A mini excavator digs along the east fence in the northeast corner to form the expanded bike path bed; no wildlife is observed in the vicinity. One yellow-rumped warbler forages along the East Basin shoreline.

1:30 pm. One bufflehead lands in the East Basin and begins foraging. The occasional ring-billed or western gull flyover is observed. One black phoebe perches on the stormwater inlet, roughly 30 feet from chiseling/cleaning activities. Two European starlings fly east above Washington Boulevard. The weather is sunny and windy.

1:50 pm. Crews rake soils on the northwest peninsula. Four rock pigeons fly over the west bank to the north, and two house finches perch on temporary power lines near the construction trailer.

2:15 pm. The Power Plus crew finishes removing temporary power poles and power lines from the east bank. A double-crested cormorant leaves the site to the northeast. One orange-crowned warbler perches on the east fence.

2:45 pm. Crews clean up the northeast gate and improve the entrance. One snowy egret lands in the East Basin and stalks the shoreline. One black phoebe perches on a rock in the central mudflats. Two American coots continue to forage in the southeast channel.

3:10 pm. Crews grade and smooth the northeast entrance. A second crew continues soil treatment on the northwest peninsula in preparation for planting. One yellow-rumped warbler perches on the south fence. One Anna's hummingbird hovers above a black phoebe, who perches on a stake on the south bank.

3:25 pm. All work stops for the day and crews begin cleaning up and prepare to leave the site. One dark-eyed junco and one black-chinned hummingbird perch in the pine closest to the tide gates. Three California gulls fly east-to-west over the Basin. Frequent western and ring-billed gull flyovers are observed.

3:45 pm. All construction crew members, except for the construction superintendent, leave the site. The construction superintendent is going to stay until after low tide (i.e. 5:00 pm) to open the tide gates and flush the water in the Basin out to the marina. The biological monitor shows the

construction superintendent the rootwads that should be saved.

4:00 pm. The biological monitor leaves the site.

Additional Observations

No Black Skimmers, Osprey, or California Least Terns were observed today.

No savannah sparrows, and therefore no potential Belding's savannah sparrows, were observed today.

No planting occurred today.

No monarch butterflies were observed today. Cool temperatures in the morning and windy conditions in the afternoon likely contributed to no monarch observations. No butterflies or other wildlife were harmed during construction. Construction crews were reminded to be on the lookout for any monarchs that fly into active work areas.

Conclusions

Based on observations made during monitoring, the following conclusions were made:

1. Biological awareness training emphasizes caution to avoid harm to birds and wildlife in and around the Basin during construction activities. In general, wildlife tends to slowly move away from an area when crews approach to conduct work activities. They return to the area once the crews move on.
2. In general, wildlife is most active in the morning with a dramatic decrease in observed wildlife activity after 10:00 am, with the exception of American crows and gulls. Wildlife activity often increases slightly in the late afternoon.
3. No monarch butterflies or any other butterflies were observed today. The cooler temperatures in the morning and winds in the afternoon likely contributed to no butterfly observations.
4. The flushing of water through the tide gates seemed to reduce floating algae significantly.
5. Winter species have arrived including the yellow-rumped warbler, Say's phoebe, and California gull. As winter continues, it is expected that winter species will be observed at the site more frequently moving forward.
6. Waterfowl and wading birds have routinely been observed flying over the Basin and landing to the northwest in Venice's canals. These canals, the marina, and the Ballona Wetlands Ecological Reserve are areas where birds have likely temporarily relocated during construction.
7. Wildlife activity largely consists of flyovers and occurs around the periphery of the project site;

very little activity is observed within the basin itself. Wildlife activity is concentrated along Admiralty Way and Washington Boulevard, and near the bike path and Yvonne Burke Park.

Table 1 provides a list of bird species observed during biological monitoring on January 13, 2016.

Table 1. Bird Species Observed during Biological Monitoring on January 13, 2016		
Common Name	Scientific Name	Comments
American Crow	<i>Corvus brachyrhynchos</i>	Several individuals; Very common flying overhead, perching on power line poles, and exploring the basin banks
Peregrine Falcon	<i>Falco peregrinus</i>	1 individual observed flying over the East Basin
Western Gull	<i>Larus occidentalis</i>	Several individuals; Very common flying overhead
California Gull	<i>Larus californicus</i>	Several individuals observed flying overhead; not as common as western or ring-billed gulls
Ring-billed Gull	<i>Larus delawarensis</i>	Several individuals; Common flying overhead
Snowy Egret	<i>Egretta thula</i>	1 individual foraging in the East Basin
Canada Goose	<i>Branta canadensis</i>	2 individuals observed flying overhead
Surf Scoter	<i>Melanitta perspicillata</i>	1 individual resting on the northeast peninsula
Bufflehead	<i>Bucephala albeola</i>	2-3 individuals foraging throughout the Basin
American Coot	<i>Fulica americana</i>	2 individuals foraging throughout the Basin
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	2-3 individuals observed flying overhead and swimming throughout the Basin
Rock Pigeon	<i>Columba livia</i>	Very common; observed flying overhead and on structures to the south and west of the Basin
Say's Phoebe	<i>Sayornis saya</i>	1 individual observed perching in the central mudflat
Black Phoebe	<i>Sayornis nigricans</i>	Several observed flying from perch-to-perch throughout the Basin
Orange-crowned Warbler	<i>Oreothlypis celata</i>	1-2 individuals observed along the south and east fences
Yellow-rumped Warbler	<i>Setophaga coronata</i>	Several individuals observed flying from perch to perch throughout the Basin
Cedar Waxwing	<i>Bombycilla cedrorum</i>	A flock of 27 observed flying over the East Basin
House Finch	<i>Carpodacus mexicanus</i>	Several individuals; common in palms along Washington Boulevard
Song Sparrow	<i>Melospiza melodia</i>	1 individual observed in the northeast corner
Bushtit	<i>Psaltiriparus minimus</i>	3 individuals observed along the bike path
House Sparrow	<i>Passer domesticus</i>	2 individuals observed in the tide gate pine trees
European Starling	<i>Sturnus vulgaris</i>	4-6 individuals observed flying overhead
Dark-eyed Junco	<i>Junco hyemalis</i>	2-3 individuals observed near the pump house and tide gates
Anna's Hummingbird	<i>Calypte anna</i>	3-5 individuals observed hovering over the east and south banks
Allen's Hummingbird	<i>Selasphorus sasin</i>	3-5 individuals observed throughout the Basin
Black-chinned	<i>Archilochus alexandri</i>	1-2 individuals observed in the pine tree near the

Hummingbird		tide gates
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The following photographs show the mudflats and the water levels within the Basin:



Figure 1- Northwest mudflat from the west bank



Figure 2- Central mudflat from the northwest peninsula



Figure 3 - Northeast corner and stormwater inlet from the northeast peninsula



Figure 4 - East Basin from the south bank looking north



Figure 5 - Central Basin from the south bank looking north



Figure 6 - Gabion berm and tide gates from the west bank



Figure 7 - Large rootwad that could serve as aquatic habitat structure



Memorandum

To: Rick Sun, Los Angeles County Department of Public Works

*From: Jennifer Jones, CDM Smith
Matt Petty, CDM Smith*

Date: January 14, 2016

Subject: Draft Daily Biological Monitoring for the Oxford Retention Basin Multiuse Enhancement Project

Introduction

This memorandum summarizes the findings of biological monitoring on January 14, 2016, for the Oxford Retention Basin Multiuse Enhancement project. Information regarding the regulatory drivers and methodology of daily biological monitoring can be found in the Biological Monitoring – Introduction and Methods for Phase 2 Construction Memo, dated June 23, 2015.

Biological monitoring was conducted by Matt Petty, CDM Smith biologist, beginning at 6:15 am and ending at 3:45 p.m. Weather conditions were mostly clear to partly cloudy. Temperatures ranged from 50°F in the morning to 61°F in the afternoon. No measureable rain was recorded.

During the daily monitoring, the biologist observed activities associated with trenching and grading for the structural fill bearing wall on the south bank, hauling contaminated soils off-site, scaffolding for parapet wall, patching concrete at the southeast channel outlet, preparing soils on the north bank for planting, repairing silt fence, constructing a catwalk at the tide gates, placing potted plants in appropriate locations on the north bank, and disposing of construction debris. All crews were overseen by the Contractor Superintendent and the Inspector of Record.

The following sections provide the biologist's field-log notes, with observations of the day's activities and wildlife presence and behavior.

Biologist's Field Log

6:15 am. Biological monitor arrives on site to conduct initial assessment. The construction trailer gate is open and several crew members wait inside cars in the staging area. The Inspector of Record is working in the construction trailer.

6:25 am. The initial biological survey begins. Very little wildlife activity is observed until dawn approaches. Water levels in the Basin are down from the end of day yesterday, particularly in the East Basin and along the south shoreline where the bed is exposed. Six large trucks are lined up along Washington Boulevard to haul contaminated soils off-site. One bufflehead dives for food in

the Central Basin. One song sparrow sings from its perch on the northeast fence. Three mallards fly over the staging area to the northwest, while two mallards forage in the East Basin. A trickle flows from the stormwater inlet into the Basin. Three California gulls fly over the Basin; western and ring-billed gull flyovers are occasionally observed. One black phoebe, two bushtits, and one yellow-rumped warbler are observed in trees along the bike path. Two Anna's hummingbirds call from trees near the pump house, where one mourning dove perches atop the structure. Two American coots forage in the southeast channel, and one yellow-rumped warbler probes the shoreline nearby. Two black phoebes and two yellow-rumped warblers are observed along the south bank. One snowy egret and one great egret stalk the shallows along the south side of the gabion peninsula. A second great egret stands along the south shoreline. One Allen's hummingbird is observed in the south bank pines, and one black-chinned hummingbird perches atop a pine tree near the tide gates.

7:00 am. The biological monitor gives the bio-awareness training to the construction crew. Emphasis was placed on protection of waterfowl, wading birds, and monarch butterflies and keeping the site clean. Workers were reminded to clean up trash in the work area prior to the end of the work day. The Construction Superintendent also gives a safety briefing. All 16 crew members present sign the sign-in sheet. During the training, one great egret leaves the site and flies over the staging area to the west.

7:15 am. Work begins as the concrete crew heads to the southwest corner to construct scaffolding for the parapet wall. Another crew begins to rake and prepare soils for planting around the northwest peninsula. Three mourning doves fly over the Central Basin, and four American crows perch on a temporary power line over the west bank. One snowy egret leaves the site to the northwest. One bufflehead forages off of the northeast peninsula, and one great egret forages in the southeast channel.

7:30 am. A large front loader takes soils from the east bank stockpiles and loads trucks stationed at the northeast gate. Crews begin to take down the south privacy fence along Admiralty Way. One double-crested cormorant flies west-to-east over the Basin. Two black phoebes are observed at the stormwater inlet. The great egret routinely stabs at prey, suggesting that small fish are present in the Basin.

7:50 am. Work resumes on the structural fill bearing wall along the south bank. One double-crested cormorant flies south over the East Basin. Three European starlings are observed in palms along Washington Boulevard. Gull and rock pigeon activity increases in and over the staging area.

8:10 am. The great egret flies from the southeast channel to the tide gates. Two house finches are observed flying along the north fence. One double-crested cormorant lands in the West Basin near the tide gates. One Anna's hummingbird hovers over the northeast pines. Five rock pigeons fly over the Central Basin. One yellow-rumped warbler forages along the east bank.

8:45 am. A crew positions potted plants into their proper locations on the north bank. One double-crested cormorant flies over the East Basin, and four mourning doves fly over the Central Basin. One black phoebe is observed on the central mudflats, and one house sparrow forages in the

northwest corner. A flock of 31 cedar waxwings fly west above Washington Boulevard.

9:10 am. A small front loader is used to bring potted plants from the west bank to the north bank. One double-crested cormorant flies over the staging area. Two European starlings and one house finch are observed in palms along Washington Boulevard.

9:30 am. A crew works on installing a catwalk at the tide gates for trash rack maintenance. Three house finches perch atop the construction storage trailer in the staging area. Four American crows perch atop light poles above the west bank. One yellow-rumped warbler forages in brush along the west bank, and two American coots and one bufflehead forage in the West Basin near the tide gates.

9:50 am. A crew patches the laminated concrete of the southeast channel outlet structure. Two mourning doves and two American crows fly over the southeast channel above a foraging snowy egret. Two Anna's hummingbirds and one Allen's hummingbird are observed in trees near the pump house. Two yellow-rumped warblers forage in trees along the bike path, and one black phoebe perches on the east fence.

10:10 am. A mini excavator is used to shape the contaminated soil piles on the east bank. One northern mockingbird perches in a palm tree above contaminated soil loading activities at the northeast gate. One Cassin's kingbird lands on a power line above the stormwater inlet. Two mallards leave the site to the northwest.

10:30 am. A dump truck delivers structural fill to the south bank. Mechanized grading of soils occurs in the northwest corner. Two American crows get into trash bags in the staging area. Two mourning doves perch on a light pole above the north fence. One yellow-rumped warbler and one black phoebe are observed flying around the stormwater inlet.

10:55 am. The last large truck is filled with contaminated soils and leaves the site. Crews reshape the remaining stockpiles on the east bank. A snowy egret flies to the northeast peninsula before leaving the site to the south. A group of six American crows fly from perch-to-perch above the north bank. Up to this point, there has been very little gull activity compared to previous days.

11:15 am. Two crew members cut the thick PVC pipe at the base of the west wall with a chainsaw. The County electrician works at the tide gates. Three American crows peck around potted plants on the west bank. One snowy egret rests on the lower tier of the south side of the gabion peninsula.

11:35 am. Two large trucks arrive at the northeast gate; a front loader is used to deposit soils into the trucks from the east bank stockpiles. Floating algae is accumulating in the Basin. When the tide gates are opened, the pulse of water and flushing help to break up the algae. One 3"-long fish is observed at the tide gates. This is the first confirmed fish sighting in the Basin since it was drained. One Allen's hummingbird is observed in the pine next to the tide gates.

11:55 am. Except for the crew loading soils into awaiting trucks, construction crew members and the biological monitor break for lunch.

12:20 pm. The last of the trucks is filled with soils and leaves the site. The soil loading crew takes lunch.

12:40 pm. The majority of crew members return from lunch. Trenching and grading associated with the structural fill bearing wall continues along the south bank. The concrete crew resumes constructing the scaffolding for the parapet wall in the southwest corner. One snowy egret forages along the east shoreline. One black phoebe and two Anna's hummingbirds are observed along the west bank. One yellow-rumped warbler is observed in the south bank pine trees.

1:00 pm. A crew places chalk lines along the north bank to locate future plantings. The biological monitor flags several large rootwads on the south bank with orange tape marked "SAVE". Two yellow-rumped warblers and one black phoebe fly along the south bank. The occasional western gull and ring-billed gull fly over the site.

1:20 pm. A crew works to stabilize the privacy fence in the northeast corner. A large excavator is used to load excavated soils from the south bank into a dump truck along Admiralty Way. Three yellow-rumped warblers forage along the east bank, and one Anna's hummingbird flies along the east fence.

1:45 pm. A crew walks the periphery of the Basin fixing silt fence. Wildlife activity in the Basin includes black phoebes and yellow-rumped warblers on the banks, and American crows, rock pigeons, and western gulls occasionally flying overhead.

2:00 pm. Trenched soils from the south bank are taken by dump truck to stockpiles on the east bank. A crew continues patching the concrete on the southeast channel outlet structure; one snowy egret and two American coots forage in the nearby channel. One Say's phoebe perches on silt fence along the southeast channel.

2:25 pm. Crews on the south bank begin replacing portions of the privacy fence along Admiralty Way. One house sparrow is observed in the pines near the tide gates. The snowy egret leaves the site to the southwest. Several yellow-rumped warblers and black phoebes fly in the vicinity of work on the south bank. They fly perch-to-perch, staying roughly 20 feet away from construction activities.

2:45 pm. A crew continues work on the catwalk at the tide gates. One Anna's hummingbird calls from a temporary power line in the southwest corner.

3:00 pm. Excavation stops and the south bank is rolled smooth. Crews replace all of the south bank privacy fence along Admiralty Way that was taken down during the day. They also re-open the closed lane on Admiralty Way. One Say's phoebe and two yellow-rumped warblers perch on silt fence nearby.

3:15 pm. Crews close the northeast gate, and work stops on the south bank and at the southeast channel outlet. Crews begin to clean up for the day; however, work continues on the catwalk at the tide gates. One black phoebe perches on a stake on the northeast peninsula, and one yellow-

rumped warbler perches on the north fence. One peregrine falcon hunts rock pigeons to the southwest of the site, flushing a group of 34 pigeons that scatter in every direction.

3:30 pm. All work stops for the day and crews finish cleaning up and prepare to leave the site.

3:45 pm. All construction crew members and the biological monitor leave the site.

Additional Observations

No Black Skimmers, Osprey, or California Least Terns were observed today.

No savannah sparrows, and therefore no potential Belding's savannah sparrows, were observed today.

No planting occurred today.

No monarch butterflies were observed today. Cool temperatures throughout the day likely contributed to no monarch observations. No butterflies or other wildlife were harmed during construction. Construction crews were reminded to be on the lookout for any monarchs that fly into active work areas.

Conclusions

Based on observations made during monitoring, the following conclusions were made:

1. Biological awareness training emphasizes caution to avoid harm to birds and wildlife in and around the Basin during construction activities. In general, wildlife tends to slowly move away from an area when crews approach to conduct work activities. They return to the area once the crews move on.
2. In general, wildlife is most active in the morning with a dramatic decrease in observed wildlife activity after 10:00 am, with the exception of American crows and gulls. Wildlife activity often increases slightly in the late afternoon.
3. No monarch butterflies or any other butterflies were observed today. The cooler temperatures likely contributed to no butterfly observations.
4. The tide gates were not opened today. Without the flushing of water through the Basin, floating algae significantly increased.
5. Winter species have arrived including the yellow-rumped warbler, Say's phoebe, and California gull. As winter continues, it is expected that winter species will be observed at the site more frequently moving forward.
6. Waterfowl and wading birds have routinely been observed flying over the Basin and landing to

the northwest in Venice's canals. These canals, the marina, and the Ballona Wetlands Ecological Reserve are areas where birds have likely temporarily relocated during construction.

7. Wildlife activity largely consists of flyovers and occurs around the periphery of the project site; very little activity is observed within the basin itself. Wildlife activity is concentrated along Admiralty Way and Washington Boulevard, and near the bike path and Yvonne Burke Park.

Table 1 provides a list of bird species observed during biological monitoring on January 14, 2016.

Table 1. Bird Species Observed during Biological Monitoring on January 14, 2016		
Common Name	Scientific Name	Comments
American Crow	<i>Corvus brachyrhynchos</i>	Several individuals; Very common flying overhead, perching on power line poles, and exploring the basin banks
Cassin's Kingbird	<i>Tyrannus vociferans</i>	1 individual perched on a power line above the stormwater inlet
Peregrine Falcon	<i>Falco peregrinus</i>	1 individual hunting pigeons to the southwest of the site
Western Gull	<i>Larus occidentalis</i>	Several individuals; Very common flying overhead
California Gull	<i>Larus californicus</i>	Several individuals observed flying overhead; not as common as western or ring-billed gulls
Ring-billed Gull	<i>Larus delawarensis</i>	Several individuals; Common flying overhead
Snowy Egret	<i>Egretta thula</i>	1-3 individuals foraging throughout the Basin
Great Egret	<i>Ardea alba</i>	2 individuals foraging throughout the Basin
Mallard	<i>Anas platyrhynchos</i>	5 individuals foraging throughout the Basin or flying overhead
Bufflehead	<i>Bucephala albeola</i>	1-2 individuals foraging throughout the Basin
American Coot	<i>Fulica americana</i>	2 individuals foraging throughout the Basin
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	3-5 individuals observed flying overhead or foraging in the West Basin
Rock Pigeon	<i>Columba livia</i>	Very common; observed flying overhead and on structures to the south and west of the Basin
Mourning Dove	<i>Zenaida macroura</i>	10-12 individuals observed flying overhead or perched on power lines
Northern Mockingbird	<i>Mimus polyglottos</i>	1 individual observed perching in a palm in the northeast corner
Say's Phoebe	<i>Sayornis saya</i>	1-2 individuals observed along the south shore
Black Phoebe	<i>Sayornis nigricans</i>	Several observed flying from perch-to-perch throughout the Basin
Yellow-rumped Warbler	<i>Setophaga coronata</i>	Several individuals observed flying from perch to perch throughout the Basin
Cedar Waxwing	<i>Bombycilla cedrorum</i>	A flock of 31 observed flying over Washington Boulevard
House Finch	<i>Carpodacus mexicanus</i>	Several individuals; common in palms along Washington Boulevard

Song Sparrow	<i>Melospiza melodia</i>	1 individual observed in the northeast corner
Bushtit	<i>Psaltiriparus minimus</i>	2 individuals observed along the bike path
House Sparrow	<i>Passer domesticus</i>	1-2 individuals observed in the West Basin
European Starling	<i>Sturnus vulgaris</i>	3-5 individuals observed in palms along Washington Boulevard
Anna's Hummingbird	<i>Calypte anna</i>	7-9 individuals observed hovering overhead or perching throughout the Basin
Allen's Hummingbird	<i>Selasphorus sasin</i>	2-3 individuals observed along the south bank
Black-chinned Hummingbird	<i>Archilochus alexandri</i>	1 individual observed in the pine tree near the tide gates

The following photographs show the mudflats and the water levels within the Basin:



Figure 1- Northwest mudflat from the west bank



Figure 2- Central mudflat from the northwest peninsula



Figure 3 - Northeast corner and stormwater inlet from the northeast peninsula



Figure 4 - East Basin from the south bank looking north



Figure 5 - Central Basin from the south bank looking north



Figure 6 - Gabion berm and tide gates from the west bank



Memorandum

To: Rick Sun, Los Angeles County Department of Public Works

*From: Jennifer Jones, CDM Smith
Matt Petty, CDM Smith*

Date: January 15, 2016

Subject: Draft Daily Biological Monitoring for the Oxford Retention Basin Multiuse Enhancement Project

Introduction

This memorandum summarizes the findings of biological monitoring on January 15, 2016, for the Oxford Retention Basin Multiuse Enhancement project. Information regarding the regulatory drivers and methodology of daily biological monitoring can be found in the Biological Monitoring – Introduction and Methods for Phase 2 Construction Memo, dated June 23, 2015.

Biological monitoring was conducted by Matt Petty, CDM Smith biologist, beginning at 6:15 am and ending at 3:45 p.m. Weather conditions were mostly to partly cloudy. Temperatures ranged from 50°F in the morning to 62°F in the afternoon. While a few raindrops fell in the morning, no measureable rain was recorded.

During the daily monitoring, the biologist observed activities associated with placing fill and grading on the south bank, hauling contaminated soils off-site, scaffolding for the parapet wall and new curbs, patching concrete at the southeast channel outlet, preparing soils on the north bank for planting, repairing silt fence, filling the bioswale drainage pipe trench, placing potted plants in appropriate locations on the north bank, trenching and pipe laying near the pump house, and disposing of construction debris. All crews were overseen by the Contractor Superintendent and the Inspector of Record.

The following sections provide the biologist's field-log notes, with observations of the day's activities and wildlife presence and behavior.

Biologist's Field Log

6:15 am. Biological monitor arrives on site to conduct initial assessment. The construction trailer gate is open and several crew members wait inside cars in the staging area.

6:25 am. The initial biological survey begins. Very little wildlife activity is observed until dawn approaches. Water levels in the Basin remain low because the tide gates have not been opened since Wednesday. This has also led to significant floating algae, particularly in the West Basin.

Three large trucks waiting to haul soils and a cement pump truck sit along Washington Boulevard. A constant trickle flows from the stormwater inlet. One black phoebe is observed at the northeast peninsula. One northern mockingbird perches in a palm near the northeast corner of the site. Two mallards and one bufflehead forage in the East Basin. One ruby-crowned kinglet perches in the northeast pines. Two orange-crowned warblers are observed along the east fence. Two mourning doves, two dark-eyed juncos and two Anna's hummingbirds are observed in trees near the pump house. Two American coots forage in the southeast channel. One snowy egret lands at the central mudflats. Two house sparrows perch on the south fence, and one Allen's hummingbird hovers in the southwest corner. Western, ring-billed, and California gulls occasionally fly over the site.

7:00 am. The biological monitor gives the bio-awareness training to the construction crew. Emphasis was placed on protection of waterfowl, wading birds, and monarch butterflies and keeping the site clean. Workers were reminded to clean up trash in the work area prior to the end of the work day. All 26 crew members present sign the sign-in sheet. During the training, one great egret lands in the West Basin.

7:15 am. Work begins as the concrete crew heads to the southwest corner to construct scaffolding for the parapet wall. Another crew removes the privacy fence from along Admiralty Way, and work begins on the structural fill bearing wall on the south bank. One black phoebe perches on a stake on the west bank, and four American crows fly along the north bank. The great egret flies off-site to the northwest. Three house finches are observed in palms along Washington Boulevard.

7:30 am. Landscapers lay out potted plants along the north bank, and adjust silt fence for future planting. One willet is observed foraging along the central mudflats. Two yellow-rumped warblers fly along the east bank. Two mallard and one bufflehead continue to forage in the East Basin, and the two American coots now forage in the Central Basin.

7:45 am. A large front loader begins loading waiting trucks with soils from the east bank stockpiles. One black phoebe is observed at the stormwater inlet, and two European starlings fly east over Washington Boulevard. Some pickleweed around the northeast peninsula has survived.

8:05 am. Crews place more PVC sheeting along the south bank for future fill deposition. One greater yellowlegs lands at the central mudflats and begins foraging, and a killdeer sits on the mudflats nearby.

8:25 am. A crew begins picking up debris along the south bank, while a small front loader is used to grade and smooth the top of bank. A flock of 18 cedar waxwings fly south above the east fence. One black phoebe perches on silt fence along the east bank, and two yellow-rumped warblers do the same along the south bank.

8:45 am. Concrete crews finish work in the southwest corner and turn their attention to scaffolding for the concrete wall in the northeast corner. A few rain drops fall, but are not enough to even wet the ground. Two American crows perch on a power pole in the northeast corner, and two yellow-rumped warblers perch in palms along Washington Boulevard. Western, ring-billed, and California gulls and rock pigeons frequently fly over the Basin.

9:10 am. A crew prepares the scaffolding for the bulkhead at the northeast pines, while an Anna's hummingbird watches from above. A mini excavator is used to excavate a trench along the bike path at the pump house. Three bushtits and two dark-eyed juncos are observed along the bike path. Two American crows and one yellow-rumped warbler investigate the east bank. Two orange-crowned warblers and two Anna's hummingbirds are observed in trees near the pump house.

9:30 am. Dirt from the trench excavation along the bike path near the pump house is stockpiled on the east bank. A crew patches the laminated concrete of the southeast channel outlet structure. Five dump trucks deliver fill to the south bank, where it is placed on the PVC sheeting. The concrete crew work on scaffolding for the low concrete wall in the northeast corner. One Allen's hummingbird hovers over the southeast channel above a black phoebe perched on silt fence. Two Townsend's warblers forage in the trees near the pump house. One yellow-rumped warbler, one lesser goldfinch, and one song sparrow are observed in trees along the bike path.

9:50 am. The last soil-hauling truck at the northeast gate is filled and leaves the site. A crew re-shapes the soil stockpiles on the east bank. The concrete pump truck moves into position near the northeast pines. The biological monitor investigates a killdeer that has been sitting in the same spot on the central mudflats for two hours. The killdeer is uninjured and no nest or eggs are observed. The willet leaves the site to the southwest.

10:10 am. The fill on the south bank is spread evenly over the PVC sheeting; no wildlife is observed in the vicinity. Two gadwall land in the East Basin and begin foraging. One black phoebe flies along the east bank.

10:30 am. The last dump truck departs from the south bank/Admiralty Way. The fill is wetted and spread along the south bank. Two house finches perch on the south fence, and three house sparrows fly from perch-to-perch along the north bank. One yellow-rumped warbler and one black phoebe are observed in the southwest corner of the site.

10:50 am. A crew begins placing the bioswale drainage pipe in the trench in the northeast corner. The trench is then backfilled with sand. Two Allen's hummingbirds are observed hovering near the tide gate pine trees underneath which a yellow-rumped warbler forages in the sea lavender. The frequency of American crow, gull, and rock pigeon flyovers is decreasing.

11:10 am. A soil-hauling truck arrives at the northeast gate, and a large front loader fills it with soils from the east bank stockpiles. Dump trucks occasionally arrive along Admiralty Way and deposit fill in the staging area. One yellow-rumped warbler probes straw wattles on the south bank. The two gadwall exit the site to the northwest. One black phoebe chases a yellow-rumped warbler along the east shore.

11:30 am. A concrete mixer arrives at the northeast gate and the concrete crew prepare for a scheduled noon pour. The soil-hauling truck is full and leaves the site. Dump trucks line up along Admiralty Way and deposit fill along the south bank. Excavation at the pump house stops and the crew takes lunch. One black phoebe is observed in the northwest corner, and three American

crows fly over the East Basin. Two American coots forage along the south shoreline.

11:45 am. The concrete pour begins with the curb and retaining wall near the northeast pines. Two Anna's hummingbirds watch from nearby trees. A crew resumes filling the bioswale pipe trench with sand. A second crew continues to spread fill along the south bank.

12:00 pm. Because of dump trucks arriving along Admiralty Way and the concrete pour, crew members take rolling lunches. The biological monitor takes lunch from 12:00-12:40.

12:40 pm. The majority of crew members and the biological monitor return from lunch. Two house sparrows perch atop the construction trailer. One snowy egret lands in the East Basin and begins foraging along the shoreline. The concrete pour ends along the east fence and the concrete pump truck heads to the staging area to wash out.

1:00 pm. Concrete crews treat recently-poured concrete along the east fence and construct scaffolding in the northeast corner. Excavation resumes along the bike path near the pump house. Soils are stockpiled on the east bank. One house finch is observed along the north fence, and two black phoebes perch along the east bank.

1:30 pm. A crew waters potted plants along the north and west banks. Dump trucks continue to deliver fill to the south bank along Admiralty Way. Crews spread fill along the top of the south bank. The filling of the bioswale drainage trench with sand continues in the northeast corner of the site. One yellow-rumped warbler and one Anna's hummingbird are observed near the east fence. Two black phoebes perch on silt fence along the south shoreline.

1:50 pm. Crews install pipes and backfill the trench along the bike path at the pump house. Concrete patching at the southeast channel outlet continues, while a snowy egret forages in the channel nearby. One Allen's and one Anna's hummingbird are observed in trees near the pump house. No monarchs are observed in trees anywhere along the bike path.

2:10 pm. Four yellow-rumped warblers and two black phoebes fly perch-to-perch along the south bank. They appear interested in the fill deposition and grading work occurring at the top of bank but stay at least 20 feet away from active work areas.

2:30 pm. The crew filling the bioswale drainage trench complete their work. Concrete crews erect scaffolding along the east fence for additional curb. Two California gulls fly east-to-west over the Basin, and one double-crested cormorant flies over the West Basin. One Allen's hummingbird is observed hovering around the south bank pines.

2:50 pm. Crews sweep the closed lane of Admiralty Way and start putting the privacy fence back up along the south bank. Excavation activities stop at the pump house. One snowy egret and two American coots forage along the central mudflats.

3:10 pm. A bulldozer is used to shape the slopes of the south bank. A crew places additional potted plants in designated areas on the north bank. A killdeer leaves the central mudflats and exits the

site to the east. Two dark-eyed juncos forage in potted plants along the west bank.

3:30 pm. All work stops for the day and crews finish cleaning up and prepare to leave the site.

3:45 pm. All construction crew members and the biological monitor leave the site.

Additional Observations

No Black Skimmers, Osprey, or California Least Terns were observed today.

No savannah sparrows, and therefore no potential Belding's savannah sparrows, were observed today.

No planting occurred today.

No monarch butterflies were observed today. Cool temperatures throughout the day likely contributed to no monarch observations. No butterflies or other wildlife were harmed during construction. Construction crews were reminded to be on the lookout for any monarchs that fly into active work areas.

Conclusions

Based on observations made during monitoring, the following conclusions were made:

1. Biological awareness training emphasizes caution to avoid harm to birds and wildlife in and around the Basin during construction activities. In general, wildlife tends to slowly move away from an area when crews approach to conduct work activities. They return to the area once the crews move on.
2. In general, wildlife is most active in the morning with a dramatic decrease in observed wildlife activity after 10:00 am, with the exception of American crows and gulls. Wildlife activity often increases slightly in the late afternoon.
3. No monarch butterflies or any other butterflies were observed today. The cooler temperatures likely contributed to no butterfly observations.
4. The tide gates were not opened today. Without the flushing of water through the Basin, floating algae significantly increased.
5. Winter species have arrived including the yellow-rumped warbler, greater yellowlegs, and California gull. As winter continues, it is expected that winter species will be observed at the site more frequently moving forward.
6. Waterfowl and wading birds have routinely been observed flying over the Basin and landing

to the northwest in Venice's canals. These canals, the marina, and the Ballona Wetlands Ecological Reserve are areas where birds have likely temporarily relocated during construction.

7. Wildlife activity largely consists of flyovers and occurs around the periphery of the project site; very little activity is observed within the basin itself. Wildlife activity is concentrated along Admiralty Way and Washington Boulevard, and near the bike path and Yvonne Burke Park.

Table 1 provides a list of bird species observed during biological monitoring on January 15, 2016.

Common Name	Scientific Name	Comments
American Crow	<i>Corvus brachyrhynchos</i>	Several individuals; Very common flying overhead, perching on power line poles, and exploring the basin banks
Killdeer	<i>Charadrius vociferus</i>	1 individual observed on the central mudflats
Willet	<i>Tringa semipalmata</i>	1 individual observed on the central mudflats
Greater Yellowlegs	<i>Tringa melanoleuca</i>	1 individual observed on the central mudflats
Western Gull	<i>Larus occidentalis</i>	Several individuals; Very common flying overhead
California Gull	<i>Larus californicus</i>	Several individuals observed flying overhead; not as common as western or ring-billed gulls
Ring-billed Gull	<i>Larus delawarensis</i>	Several individuals; Common flying overhead
Snowy Egret	<i>Egretta thula</i>	1-3 individuals foraging throughout the Basin
Great Egret	<i>Ardea alba</i>	1 individual observed in the West Basin
Mallard	<i>Anas platyrhynchos</i>	2 individuals foraging throughout the Basin
Gadwall	<i>Anas strepera</i>	2 individuals observed foraging in the East Basin
Bufflehead	<i>Bucephala albeola</i>	1 individual foraging throughout the Basin
American Coot	<i>Fulica americana</i>	2 individuals foraging throughout the Basin
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	1 individual observed flying overhead
Rock Pigeon	<i>Columba livia</i>	Very common; observed flying overhead and on structures to the south and west of the Basin
Mourning Dove	<i>Zenaida macroura</i>	2 individuals observed near the pump house
Northern Mockingbird	<i>Mimus polyglottos</i>	1 individual observed perching in a palm in the northeast corner
Black Phoebe	<i>Sayornis nigricans</i>	Several observed flying from perch-to-perch throughout the Basin
Yellow-rumped Warbler	<i>Setophaga coronata</i>	Several individuals observed flying from perch to perch throughout the Basin
Orange-crowned Warbler	<i>Oreothlypis celata</i>	2-4 individuals observed along the east fence
Townsend's Warbler	<i>Setophaga townsendi</i>	2 individuals observed in trees near the pump house

Ruby-crowned Kinglet	<i>Regulus calendula</i>	1 individual observed in the northeast pine trees
Dark-eyed Junco	<i>Junco hyemalis</i>	4-6 individuals observed throughout the Basin
Cedar Waxwing	<i>Bombycilla cedrorum</i>	A flock of 18 individuals observed flying over the east fence
House Finch	<i>Carpodacus mexicanus</i>	Several individuals; common in palms along Washington Boulevard
Lesser Goldfinch	<i>Spinus psaltria</i>	1 individual observed along the bike path
Song Sparrow	<i>Melospiza melodia</i>	1 individual observed along the bike path
Bushtit	<i>Psaltiriparus minimus</i>	3 individuals observed along the bike path
House Sparrow	<i>Passer domesticus</i>	5-7 individuals observed throughout the Basin
European Starling	<i>Sturnus vulgaris</i>	2 individuals observed flying along Washington Boulevard
Anna's Hummingbird	<i>Calypte anna</i>	7-9 individuals observed hovering overhead or perching throughout the Basin
Allen's Hummingbird	<i>Selasphorus sasin</i>	4-6 individuals observed throughout the Basin

The following photographs show the mudflats and the water levels within the Basin:



Figure 1- Northwest mudflat from the west bank



Figure 2- Central mudflat from the northwest peninsula



Figure 3 - Northeast corner and stormwater inlet from the northeast peninsula



Figure 4 - East Basin from the south bank looking north



Figure 5 - Central Basin from the south bank looking north



Figure 6 - Gabion berm and tide gates from the west bank